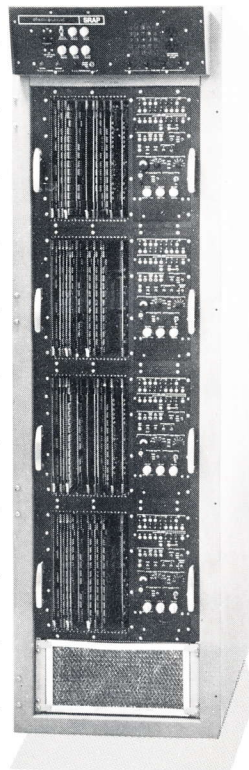


Sensor Receiver And Processor (SRAP)



- Detects aircraft replies derived from radar and beacon sensors
- Generates a target report for aircraft
- Generates and reports weather map data
- Two modules — Radar Data Acquisition Subsystem (RDAS) and Beacon Data Acquisition Subsystem (BDAS)
- Extensive microprogrammed firmware in

- PROM
- Automatic diagnostics isolate fault to a single card
- Improved detection sensitivity and accuracy
- Serial data transmission for modem or parallel data transmission by direct computer interface
- May be configured as RDAS only, BDAS only, combined RDAS and BDAS or dual (redundant) RDAS/BDAS.



Features

Functional Characteristics

RDAS Target Reporting

Capacity — 250/sec
Maximum Range — 256 n. miles
Range Accuracy (RMS)
 Short range — 125 feet
 Long range — 400 feet
Azimuth Accuracy — 0.2 deg. RMS
Range Resolution — 1.5 pulse widths for 90% resolution
Probability of Detection
 50% for 6 dB peak signal RMS noise target
 95% for target 3dB above MDS
Weather False Alarm Control
 10^{-5} to 10^{-6} max variation
Target Splits — less than 1 %

RDAS Weather Reporting

Number of Levels — 2, light and heavy
Resolution
 Range — 24 radar pulse widths
 Azimuth — 2.8 degrees
Update Rate — one complete map per 4 antenna revolutions

BDAS Target Reporting

Decodes and Reports Mode 3/A and C Replies
Capacity — 250/sec
Maximum Range — 256 n. miles
Range Accuracy — 40 feet
Azimuth Accuracy — 0.2 deg. RMS
Range Resolution — 250 feet for 90% resolution
Azimuth Resolution — 3dB beam width for 90% resolution
Probability of Detection — 100% for target with 4 or more replies
Target Splits — less than 1%

Radar-Beacon Correlation

BDAS correlates beacon and radar replies and combines the replies into one report on the same aircraft.

System Options

Configuration:
 RDAS or BDAS only — Stand alone (1 module each)
 SRAP — Combined RDAS and BDAS (2 modules)
 Dual SRAP — Dual RDAS/BDAS (4 modules)
BDAS digital defruiter
Serial output interface (BDAS or RDAS)
 Drives up to 4 modems at 2400, 4800 or 9600 BPS each
Duplexed parallel output
 30-bit interface for direct output to 1 or 2 ARTS computer(s) (BDAS or RDAS)
Digital radar interface
 Accepts 10-bit normal and MTI video and clock
Analog radar interface
 Accepts analog normal and MTI videos
RDAS interfaces with BDAS for BDAS output in normal ATC SRAP configuration

Physical Characteristics

Cabinet dimensions
 Height — 84 in.
 Width — 24 in.
 Depth — 30 in.
Module Dimensions — RDAS or BDAS
 Height — 16 in.
 Width — 19 in.
 Depth — 25 in.
System Weight
 760 lbs. (Dual RDAS/BDAS plus Cabinet)

Input Power

Single Phase, 3 wire
120V \pm 10%
60 Hz \pm 2%
2000 Watts (Dual RDAS/BDAS)

Environmental

Altitude 0 — 10,000 feet
Temperature 10° — 50° C
Humidity 5% — 90%

Reliability

BDAS — 7825 hours
RDAS — 7406 hours
Single System — 3897 hours

Maintainability (MTTR)

BDAS — 30 minutes
RDAS — 30 minutes
System — 30 minutes

Applications

- Air Traffic Control
 - ARSR-2 and ARSR-3
 - ASR-4 thru ASR-8
 - ATCBI-4 and ATCBI-5
 - Beacon
 - Search
 - Enroute
 - Terminal
 - Military
- Tactical Air Surveillance